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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,533	12/17/2003	Kenichi Ogawa	246747US2X	4429
22850 7590 01/18/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER REED, LYNN D	
			ART UNIT	PAPER NUMBER
			2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/736,533

Applicant(s)

OGAWA, KENICHI

Examiner

Lynn D. Reed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 9, 10 and 12 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 8 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/17/2004 & 5/19/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The first paragraph in the Summary of the Invention section does not make sense as written. In particular, in sentences three and four the phrase 'method capable of making it possible X-ray scanning in the most suitable condition to track the flow of an X-ray...' is not clear as some words must be missing and/or the grammar is improper. Throughout the specification phrases such as 'to relatively move one of both the tabletop and the support apparatus to the other and perform a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other...', 'move the one of both...', and 'one of both the tabletop and the support apparatus' are made. The meaning of this phrase is not clear because it is not clear what is moving. In all such phrases the meaning is not clear and at a minimum these statements are grammatically incorrect because it is it does not make sense to say 'one of both the...'. Throughout the specification phrases such as 'operator's manually operated information....' are made. In all such phrases the meaning is not clear as information can not be operated. Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the function of F3 in figure 12 in English as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because of the following informalities: In the last three sentences of claim 1 it does not make sense to say ‘perform the imaging scan on the object on the imaging parameters set by the imaging parameter setting unit’ as an object can not be placed on the imaging parameters. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 1, 2, 4, 9, 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1 it is not clear what is meant by the phrases ‘a fluoroscopic scan unit configured to relatively move one of both the tabletop and the support apparatus to the other and to perform a fluoroscopic scan along a direction predetermined with

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respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other...' and 'an imaging scan unit configured to relatively move the one of both the tabletop and the support apparatus to the other and, with the one of both the tabletop and the support apparatus..'. The meaning of these phrases is not clear because it is not clear what is moving. The statement is also grammatically incorrect because it is it does not make sense to say 'one of both the...'. In claim 2 the phrase 'operator's manually operated information....' is used. The meaning is not clear as information can not be operated. In claim 4 it is not clear what is meant by the phrase 'a relatively moving speed of one of both the tabletop to the other depending....'. The meaning of this phrase is not clear because it is not clear what is moving. The statement is also grammatically incorrect since it does not make sense to say 'one of both the...'. In claim 9 it is not clear what is meant by the phrase 'a relative moving speed of one of both the tabletop to the other depending....'. The meaning of this phrase is not clear because it is not clear what is moving. The statement is also grammatically incorrect because it does not make sense to say 'one of both the...'. In claim 10 it is not clear what is meant by the phrase 'a relative moving speed of one of both the tabletop and the support apparatus...' and 'relative speed of the one of both the table top and the support apparatus to the other.'. The meaning of this phrase is not clear because it is not clear what is moving. The statement is also grammatically incorrect because it does not make sense to say 'one of both the...'. In claim 12 it is not clear what is meant by the phrases 'relatively moving one of both the tabletop and the support apparatus to the other and performing a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other' and 'relatively moving the one of both the tabletop and the support apparatus to the other and,

with the one of both the tabletop and the support apparatus relatively moved to the other'. The meaning of these phrases is not clear because it is not clear what is moving. The statement is also grammatically incorrect because it does not make sense to say 'one of both the...'.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al. (2002/0090058) in view of Murthy et al. (US 6055295).

Consider claim 1, as best understood (112-2 rejection), Yasuda et al. show and disclose an X-ray diagnostic system comprising: an X-ray source (X-ray tube) 5 ([0038] lines 4-5 and figure 2) irradiating an X-ray; an X-ray detector (imaging system) 6 ([0038] lines 4-5 and figure 2) detecting the X-ray; a support apparatus configured to support both the X-ray source and the X-ray detector so that both the X-ray source and the X-ray detector are opposed to each other with a space left therebetween ([0071]), a tabletop (table top) 9 ([0040] lines 3-7 and figure 2) on which an object (patient) P (figure 2) to be examined is laid being located in the space; a fluoroscopic scan unit configured to relatively move one of both the tabletop and the support apparatus to the other and to perform a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other thereby a fluoroscopic image of the object being provided along the direction ([0104], [0105], and figure 13); an imaging parameter setting unit configured to set, at every

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region to be examined of the object, imaging parameters ([0080], [0081], and figure 10) required for an imaging scan on the basis of the fluoroscopic image, the regions being at least continuous without a gap along the direction determined with respect to the object ([0089]); and an imaging scan unit configured to relatively move the one of both the tabletop and the support apparatus to the other and, with the one of both the tabletop and the support apparatus relatively moved to the other ([0096], [0097], and [0098]), perform the imaging scan on the object on the imaging parameters ([0142] and [0144]) set by the imaging parameter setting unit except for the object being subjected to injection of an X-ray contrast agent when the object is examined and the X-ray contrast agent flowing substantially along the direction in the first step of the method.

Murthy et al. show and disclose a contrast agent that is administered to a patient prior to diagnostic imaging (Column 3 lines 16-17 and figure 1). It would have been obvious to a one having ordinary skill at the time the invention was made to implement the contrast agent techniques of Murthy et al. in the system of Yasuda to obtain images displaying details of the physiology of the patient and increase the accuracy in the diagnosis of disease.

Consider claim 2, as best understood (112-2 rejection), Yasuda et al. show and disclose an X-ray diagnostic system according to claim 1, wherein the imaging parameter setting unit is configured to accept operator's manually operated information and to set the imaging parameters in response to the operator's manually operated information (input device) 74 ([0082] and figure 10).

Consider claim 7, Yasuda et al. show and disclose an X-ray diagnostic system according to claim 1 except for where the imaging parameter setting unit is configured to, from the fluoroscopic image obtained by the fluoroscopic scan unit, automatically recognize the region

through which the X-ray contrast agent flows and to set the imaging parameters based on a recognized result of the automatic recognition. Murthy et al. show and disclose an X-ray imaging system and teaches how the location of a region in an image can be automatically detected and set imaging parameters (Abstract, column 1 lines 64-67, and column 2 lines 1-4). It would have been obvious to a one having ordinary skill at the time the invention was made to implement the techniques of Murthy et al. with the method of Yasuda to lessen the burden on the operator.

Consider claim 12, as best understood (112-2 rejection), Yasuda et al. show and disclose a method of X-ray imaging performed by the X-ray diagnostic system comprising an X-ray source (X-ray tube) 5 ([0038] lines 4-5 and figure 2) irradiating an X-ray; an X-ray detector (imaging system) 6 ([0038] lines 4-5 and figure 2) detecting the X-ray; and a support apparatus (C-arm support mechanism) 14 ([0043] lines 48-10 and figure 2) configured to support both the X-ray source and the X-ray detector so that both the X-ray source and the X-ray detector are opposed to each other with a space left therebetween ([0071]), a tabletop (table top) 9 ([0040] lines 3-7 and figure 2) on which an object (patient) P (figure 2) to be examined is laid being located in the space, the method comprising the steps of: relatively moving one of both the tabletop and the support apparatus to the other and performing a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other ([0104] lines 8-10), thereby a fluoroscopic image ([0104], [0105], and figure 13), of the object being provided along the direction; setting, at every region to be examined of the object, imaging parameters ([0080], [0081], and figure 10) required for an imaging scan on the basis of the fluoroscopic image, the regions being at least continuous without a gap along the direction determined with respect to the object ([0089]); and relatively

moving the one of both the tabletop and the support apparatus to the other and, with the one of both the tabletop and the support apparatus relatively moved to the other ([0096], [0097], and [0098]), performing the imaging scan ([0142] and [0144]) on the object on the imaging parameters ([0096]) except for the object being subjected to injection of an X-ray contrast agent when the object is examined and the X-ray contrast agent flowing substantially along the direction in the first step of the method. Murthy et al. show and disclose a contrast agent that is administered to a patient prior to diagnostic imaging (Column 3 lines 16-17 and figure 1). It would have been obvious to a one having ordinary skill at the time the invention was made to implement the contrast agent techniques of Murthy et al. with the method of Yasuda to obtain images displaying details of the physiology of the patient and increase the accuracy in the diagnosis of disease.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al. in view of Murthy et al. as applied to claims 1, 2, 7 and 12 above, and further in view of Okabe et al. (US 4766603).

Consider claim 3, Yasuda et al. show and disclose an X-ray diagnostic system according to claim 2 except for an imaging scan unit that includes means for controlling a radiation field of the X-ray on the object in the direction on the basis of the imaging parameters. Okabe et al. show and disclose an aperture device of a radiation diagnostic apparatus that can define X-rays to form a radiation field that is precisely identical with predetermined areas of a fluoroscopic scan (Column 2 lines 44-48, column 3 lines 42-65, and figures 5 and 6). It would have been obvious to a one having ordinary skill at the time the invention was made to implement the teachings of Okabe et al. with the method of Yasuda et al. as modified by Murthy et al. to substantially

eliminate scattered radiation as this improves the image quality of the object of interest and this is required to accurately diagnose disease.

Allowable Subject Matter

7. Claims 4, 9, and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 5, 6, 8 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Prior art relevant to this patent application but not included in this Office action includes: US Patents (6990368, 5870450, 5450464, 6990368, 5917882, 6577889 and 6052476) and US Publications (20020045817, 20020041654, and 20040005031).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynn D. Reed whose telephone number is (571)272-9093. The examiner can normally be reached on Monday - Thursday, 6:30 a.m - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on (571)272-9820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lynn D Reed
Examiner
Art Unit 2112


1/10/07
JAYPRAKASH GANDHI
SUPERVISORY PATENT EXAMINER